

180 LOEMANS ROAD, BULLA, VICTORIA

OFFSET PLAN

Qanstruct (Aust) Pty. Ltd.



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ISSUE AND REVISION RECORD

Revision	Date	Author/s	Reviewer	Revisions
2.0	06/07/10	Amanda Dodd & Rachel Omodei	Alan Brennan	Initial version
2.1	10/08/10	Rachel Omodei	Alan Brennan	Reduction in development area and gain targets along with inclusion of supplementary planting as part of the offset strategy
2.2	04/10/10	Bill Wallach	Alan Brennan	Removal of tree planting, increase in offset zone area and subsequent changes to Figure 1.

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1. INTRODUCTION

Qanstruct Pty. Ltd. engaged Brett Lane & Associates to produce an Offset Plan with vegetation gain calculations to account for the planned clearing of native vegetation of an almost 40 hectare property located at 180 Loemans Road, Bulla. The site is located within the Victorian Volcanic Plain Bioregion.

The site currently supports one habitat zone supporting 11.72 habitat hectares (37.8 hectares) of endangered Plains Grassy Woodland (EVC 55_61) of High conservation significance, and was previously assessed by Brett Lane & Associates Pty Ltd in May 2010 (BL&A 2010). An 8.9 hectare portion of the site is to be developed for an animal handling facility.

This offset plan provides details of offset obligations resulting from the approved removal of native vegetation from 180 Loemans Road, Bulla. This plan also details the extent, condition and available gain of the proposed offset site at 180 Loemans Road, Bulla, and outlines management actions and targets in tabular form. Qanstruct Pty. Ltd. will implement this offset plan.

Directions provided within this offset plan are consistent with the requirements of current planning practice in relation to the state Native Vegetation Management Framework, herein referred to as the 'Framework'. The format of this plan is approved by DSE.

The offset plan is divided into the following sections:

Section 2 is an assessment of the suitability of the proposed offset site. It includes details about the approved clearing, Like-for-Like criteria and gain calculations.

Section 3 describes how the offset is to be implemented. It includes details about landowner commitments, management activities, monitoring and reporting. It is intended to be placed on-title.

This offset plan was prepared by a team from Brett Lane & Associates Pty Ltd, comprising Amanda Dodd (Botanist), Rachel Omodei (Botanist), Bill Wallach (Botanist) and Alan Brennan (Senior Ecologist and Project Manager).

2. OFFSET SUITABILITY (PART A)

CLEARING SITE DETAILS	
Landowner of clearing site	Qanstruct Pty. Ltd.
Location and address of clearing site	180 Loemans Road, Bulla
Local Government Area	Hume City Council
Catchment Management Authority	Port Philip and Western Port Catchment Management Authority
Responsible Authority	Department of Sustainability and Environment
Permit applicant	Qanstruct Pty. Ltd.
Planning Permit Number (ID)/Work Authority Number	To be provided
Date approved	To be provided

2.1. Vegetation approved for removal

Table 1: Summary of approved losses of patches of native vegetation

Habitat Zone		A
Bioregion		VVP
EVC No.		55_61
EVC Bioregional Conservation Status		Endangered
Habitat Score	100	31
Habitat points = #/100	1.00	0.31
Habitat Zone area to be cleared (ha)	(#.##)	8.90
Habitat Hectares of loss	(#.##)	2.76
Conservation Significance	Conservation status x Habitat Score	High
	Threatened Species Rating	Low**
	Other Site Attribute Rating	Low
	Overall Conservation Significance (highest rating)	High
Net Outcome		x 1.5
Gain Target (Hha)		4.14
No. of Large Old Trees to be removed in each Habitat Zone		0
Tree protection multiplier		N/A
Large Old Trees to be protected		0

** = May increase following targeted searches for threatened species

2.2. Gain targets

The offset requirement, as specified in accordance with Appendix 4 of the Framework (see Appendix 4) and Appendix 3 of the Port Phillip and Westernport Catchment Management Authority regional Native Vegetation Plan (see Appendix 5), comprises:

- 4.14 HHa of High Conservation Significance Plains Grassy Woodland EVC 55_61.

All gain targets will be met by the proposed offset on implementation of this plan.

Table 2: Gain targets for clearing remnant patches

Target No.	Habitat Zones	Bioregion	EVC No.	Conservation significance	Min. habitat score for target	Other Like-for-Like reqts	Habitat Hectares Target			Large Tree Protection Target*		
							Total Losses (Hha)	Net Outcome	Gain Target (Hha)	Total LOTs Lost	Protection Multiplier	LOTs to be protected
H1	A	VVP	55_61	High	23	**	2.76	1.5	4.14	0	N/A	N/A

* = The protection of a medium or large tree, either scattered or within a patch, is assumed to result in the generation of five recruits. To be considered protected, twice the canopy diameter of the tree must be fenced and protected from adverse impacts (DSE 2007). It is therefore been assumed that protection of a tree will generate five recruits and no separate recruitment targets have been calculated. ** Remaining 50% habitat for Golden Sun-moth and Fat-tailed Dunnarts and same EVC or a very high conservation significance EVC in the same Bioregion.

2.3. Description of offset site

The offset site (Figure 1 and Figure 2) is approximately 25.6 hectares of land located approximately 2.5 kilometres south-west of Bulla. It is bordered by Loemans Road to the south and east, and agricultural paddocks to the north and west. The offset and clearing sites are located on the same property.

Historically, the study area and surrounding land have been used for agricultural purposes (e.g. cropping and stock grazing).

The study area supported clay soils on a flat to undulating landscape. Apart from a dried, and apparently filled, dam in the centre of the study area no other water bodies were present.

The study area was situated within an agricultural landscape, with similar habitats present in all directions. The adjacent paddocks had recently been ploughed. The Organ Pipes National Park was situated 1.8 kilometres south-west of the study area and the Woodlands Historic Park approximately 2.9 kilometres north-east. Connectivity to these habitats was high.

The study area lies within the Victorian Volcanic Plains bioregion and falls within the jurisdiction of the Port Philip and Western Port Catchment Management Authority. It is currently zoned Green Wedge Zone and is subjected to the Melbourne Airport Environs Overlay – Schedule 1 in the Hume Planning Scheme.



Legend

- Study Area
- Development Site
- Native Vegetation
- Offset Area
- Melbourne Water Easement

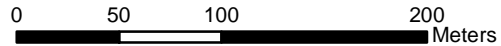


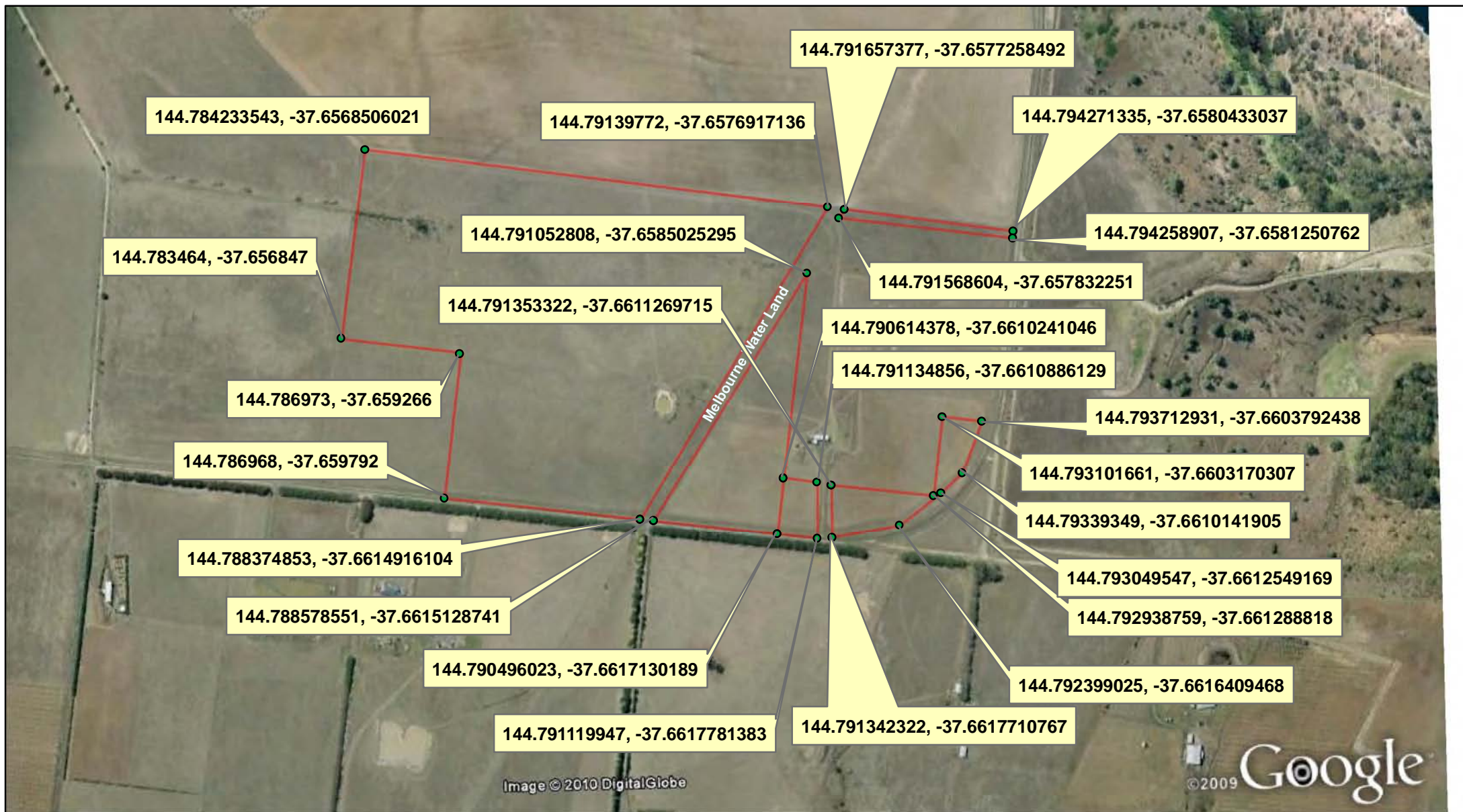
Figure 1: Study Area and Native Vegetation

Project: 180 Loemans Road, Bulla

Client: Qansturct Pty. Ltd.

Project No.: 10009	Date: 05/10/2010	Created By: I. Kulik / J.Wen
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Legend

Offset Area

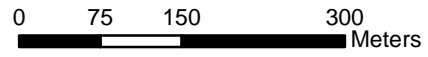


Figure 2: Offset Area and Coordinates

Project: 180 Loemans Road, Bulla

Client: Qansturct Pty. Ltd.

Project No.: 10009	Date: 05/10/2010	Created By: I. Kulik / J.Wen
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<p>BL&A</p> <ul style="list-style-type: none"> ● Experience ● Knowledge ● Solutions 	<p>Brett Lane & Associates Pty. Ltd. Ecological Research & Management</p> <p>25 Burwood Rd, Hawthorn PO Box 74, Richmond VIC 3121 Australia</p>	<p>ph (03) 9815 2111 fax (03) 9815 2685 blane@ecologicalresearch.com.au www.ecologicalresearch.com.au</p>	
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2.3.1. Flora

Vegetation

Observed vegetation within the offset site consisted of a treeless form of grassy woodland. Species composition was dominated by wallaby grasses with occasional spear grasses present. Occasional scattered Boxthorn was also present, primarily situated in northern half of the study area. Serrated Tussock and other weeds, in varying concentrations, were scattered throughout the study area.

Ecological Vegetation Class

Pre-European EVC mapping (DSE 2009a) indicates that the study area and surrounds would have supported Plains Grassy Woodland (EVC 55) based on modelling of factors including rainfall, aspect, soils and remaining vegetation.

Evidence on site, including floristic composition and soil characteristics, suggested that a highly modified treeless and shrubless version of Plains Grassy Woodland (EVC 55_61) was present throughout the study area.

Plains Grassy Woodland (EVC 55_61) has an endangered bioregional conservation status in the Victorian Volcanic Plains bioregion. The benchmark for this EVC describes it as “open, eucalypt woodland to 15 metres tall. [It] occupies poorly drained, fertile soils on flat or gently undulating plains at low elevations. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer. This variant occupies areas receiving approximately 500 – 700 mm annual rainfall” (Appendix 6).

One remnant patch (referred to herein as Habitat Zone A) comprising Plains Grassy Woodland was recorded in the study area (Table 3).

Table 3: Description of offset zone pertinent to this offset plan

Offset Zone	EVC	Bioregional conservation status	Description
AA	Plains Grassy Woodland (EVC 55_61)	Endangered	The observed vegetation was dominated by wallaby grasses and Windmill Grass with occasional spear-grasses present. Other indigenous species recorded included Ruby Saltbush and Climbing Saltbush. The cover of introduced flora species was moderate and was dominated by high-threat weeds including Serrated Tussock, Texas Needle Grass, Artichoke Thistle, Blanket Weed and Boxthorn.

Under this plan, Offset Zone AA will be utilised to provide offsets for the subject clearing (See Figure 1).

Flora species

Flora species recorded

The field assessment recorded 20 plants species of which seven (35%) were indigenous and 13 (65%) of which were introduced (including non-indigenous native) in origin. These are listed in Appendix 1.

Threatened flora species

FIS records and the EPBC Protected Matters Search Tool (DEWHA 2009) indicate that within the search region there are records of, or there occurs potential suitable habitat for, 49 rare or threatened flora species. Ten of these species were listed under the federal EPBC Act, 19 under the state FFG Act and 44 on the DSE Advisory List for Rare and Threatened Flora. No rare or threatened flora species were detected during the current field survey.

Note that the *search region* defined for the offset site was an area with radius five kilometres from the approximate centre point of the offset site of coordinates: latitude 37° 39' 34" S and longitude 144° 47' 29" E.

The likelihood of occurrence in the study area of threatened species listed under the FFG Act or the EPBC Act is addressed in Table 4. This analysis indicates that suitable habitat does not occur on site for any FFG Act or EPBC Act-listed flora species.

No species listed on the DSE Advisory List for Rare and Threatened Flora were considered to have the potential to occur within the study area.

Table 4: FFG Act and EPBC Act listed flora species and likelihood of occurrence

Common Name	Scientific Name	Family Name	Conservation Status		Preferred Habitat	Likelihood of Occurrence
			EPBC	FFG		
Austral Moonwort	<i>Botrychium australe</i>	Ophioglossaceae		L	Rare occurrences range from lowland forest to subalpine grasslands in eastern Victoria. Formal distribution extended to near Melbourne (Entwisle 1994).	Habitat highly modified therefore unlikely to occur.
Austral Toad-flax	<i>Thesium australe</i>	Santalaceae	V	L	Grassland, woodlands and herbfields usually in damp situations (Jeanes 1999).	Habitat highly modified therefore unlikely to occur.
Basalt Peppercross	<i>Lepidium hyssopifolium</i>	Brassicaceae	E	L	Basalt Plains. Rarely recorded from western Vic and only known from two populations N and NE of Melbourne (Entwisle 1996).	Habitat highly modified therefore unlikely to occur.
Brittle Greenhood	<i>Pterostylis truncata</i>	Orchidaceae		L	Open forest, often in flat open areas with shallow granite outcrops or on sheltered ridges (Jones 1994).	Habitat highly modified therefore unlikely to occur.
Buloke	<i>Allocasuarina luehmannii</i>	Casuarinaceae		L	Woodlands on non-calcareous soils. Commonly grows with Grey Box (Entwisle 1996).	Habitat highly modified therefore unlikely to occur.
Button Wrinklewort	<i>Rutidosis leptorhynchoides</i>	Asteraceae	E	L	Basaltic grasslands (Jeanes 1999).	Habitat highly modified therefore unlikely to occur.
Clover Glycine	<i>Glycine latrobeana</i>	Fabaceae	V	L	Grasslands and grassy woodlands (Jeanes 1996).	Habitat highly modified therefore unlikely to occur.
Curly Sedge	<i>Carex tasmanica</i>	Cyperaceae	V	L	Seasonally wet heavy clayey soils (Wilson 1994).	Habitat highly modified therefore unlikely to occur.

Common Name	Scientific Name	Family Name	Conservation Status		Preferred Habitat	Likelihood of Occurrence
			EPBC	FFG		
Large-headed Fireweed	<i>Senecio macrocarpus</i>	Asteraceae	V	L	Themeda grasslands on basalt (Walsh 1999).	Habitat highly modified therefore unlikely to occur.
Marron Leek-orchid	<i>Prasophyllum frenchii</i>	Orchidaceae	E	L	Favouring heathland and Grassland on black clays (Bates 1994).	Habitat highly modified therefore unlikely to occur.
Pale Plover-daisy	<i>Leiocarpa leptolepis</i>	Asteraceae		L	Confined to NW Victoria in woodland and grassy woodland (Jeanes 1999).	Habitat highly modified therefore unlikely to occur.
Purple Diuris	<i>Diuris punctata</i> var. <i>punctata</i>	Orchidaceae		L	Plains country with low heathland or grassland, on heavy soils, with or without trees (Bishop 1996).	Habitat highly modified therefore unlikely to occur.
River Swamp Wallaby-grass	<i>Amphibromus fluitans</i>	Poaceae	V		Wetlands and permanent swamps (Walsh 1994).	Habitat highly modified therefore unlikely to occur.
Rough Eyebright	<i>Euphrasia scabra</i>	Scrophulariaceae		L	Damp grassy situations, amongst shrubs, in sclerophyll forests, clearings or subalpine woodland (Barker 1999).	Habitat highly modified therefore unlikely to occur.
Small Milkwort	<i>Comesperma polygaloides</i>	Polygalaceae		L	Heavy soils supporting grasslands and grassy woodlands (Walsh 1999).	Habitat highly modified therefore unlikely to occur.
Small Scurf-pea	<i>Cullen parvum</i>	Fabaceae		L	Seasonally wet areas with heavy soils in Grasslands and Grassy (River Red Gum) Woodlands: includes grazing country and table drains. In areas with rainfall of between 450 and 700 mm (Jeanes, 1996).	Habitat highly modified therefore unlikely to occur.

Common Name	Scientific Name	Family Name	Conservation Status		Preferred Habitat	Likelihood of Occurrence
			EPBC	FFG		
Spiny Rice-flower	<i>Pimelea spinescens</i> <i>subsp. spinescens</i>	Thymelaeaceae	C	L	Grasslands or open shrublands on basalt derived soils (Entwisle 1996). Prefers shallow depressions and drainage lines with moderate soil moisture (D.Coppolino pers. obs.).	Habitat highly modified therefore unlikely to occur.
Sunshine Diuris	<i>Diuris</i> <i>fragrantissima</i>	Orchidaceae	E	L	Grassland in well-structured red-brown or blackish basaltic loam. Found in open areas on slopes or rock outcrops (Jones, 2006).	Habitat highly modified therefore unlikely to occur.
Swamp Diuris	<i>Diuris palustris</i>	Orchidaceae		L	Scattered distribution throughout western Victoria. Usually in swampy depressions in grassland or open woodland. Numbers have reduced due to agricultural clearing (Entwisle 1994).	Habitat highly modified therefore unlikely to occur.
Tough Scurf-pea	<i>Cullen tenax</i>	Fabaceae		L	Grasslands and grassy woodlands on heavy soils in drier regions (Jeanes 1996).	Habitat highly modified therefore unlikely to occur.

2.3.2. Fauna

Fauna habitats

Grassland was the only habitat type present in the study area. A portion of the vegetation in the eastern part of the study area had been recently slashed. Adjacent to the slashed area was un-slashed vegetation. These two sites appeared to support the same species composition and structure.

The grassland habitat was dominated by wallaby-grasses and had a tussocky structure. Additional indigenous species included Windmill Grass and salt bushes. The study area supported a number of weeds including Serrated Tussock, Artichoke Thistle and Boxthorn. The latter was found in scattered patches predominantly along historical fence lines and along an old driveway.

Throughout the habitat the tussocks were interspersed with bare ground, with little evidence of soil cracking. Embedded and surface volcanic rocks were only very occasionally present. The soil had previously been ploughed.

Fauna species

Fauna species recorded

During the field assessment four fauna species were recorded: Australian Magpie, European Skylark, Australasian Pipit and Little Raven.

Threatened fauna species

The AVW and the EPBC Protected Matters Search Tool (DEWHA 2010) indicate that within the search region 23 rare or threatened fauna species (17 bird, two mammal, two reptile and two frog species) listed on the EPBC Act and/or FFG Act occur or potentially occur due to the presence of suitable habitat. Their likelihood of occurrence within the study area is assessed and presented in Table 5. Species that are likely to occur have been highlighted.

Table 5: Threatened fauna identified as occurring or potentially occurring in the offset site (excluding fish)

Common Name	Scientific Name	Conservation Status			Habitat	AVW record # (year)	Habitat suitability in study area	Likelihood of Occurrence
		EPBC	FFG	DSE				
Birds								
Australian Painted Snipe	<i>Rostratula australis</i>	VU, M (CAMBA)	L	CE	Lowlands on shallow freshwater swamps with emergent vegetation and flooded saltmarshes (Marchant and Higgins 1993).	None	Low	Unlikely to occur.
Australasian Shoveler	<i>Anas rhynchotis</i>			VU	Large and deep permanent bodies of water and aquatic flora abundant. Also occurs on billabongs, watercourses and flood waters on alluvial plains, freshwater meadows, shallow swamps, reed swamps, wooded lakes, sewage farms and farm dams (Marchant and Higgins 1990).	1 (1974)	Low	Unlikely to occur.
Australian Pratincole	<i>Stiltia isabella</i>			NT	Open plains, sparsely wooded plains and tussock grasslands; usually in arid and semi-arid zones (Higgins and Davies 1996).	1 (1982)	Low	Unlikely to occur.
Black Falcon	<i>Falco subniger</i>			VU	Woodlands, open country and terrestrial wetlands; in arid and semi-arid zones; mainly over open plains and undulating land with large tracts of low vegetation (Marchant and Higgins 1993).	1 (1999)	Low	Unlikely to occur.

Common Name	Scientific Name	Conservation Status			Habitat	AVW record # (year)	Habitat suitability in study area	Likelihood of Occurrence
		EPBC	FFG	DSE				
Black-chinned Honeyeater	<i>Melithreptus gularis gularis</i>			NT	Open box-ironbark forests and woodlands. Usually found in Red or Mugga Ironbarks, Grey Box, Yellow Gum and Yellow Box, especially mature tall trees along gullies, low-lying flats and lower slopes (Higgins <i>et al.</i> 2001; Tzaros 2005).	3 (1990 - 1991)	Low	Unlikely to occur.
Black-eared Cuckoo	<i>Chrysococcyx osculans</i>			NT	Open woodlands and open shrublands; often those dominated by eucalypts; also often in saltbush or bluebush shrublands (Higgins 1999).	2 (2000)	Low	Unlikely to occur.
Brown Treecreeper	<i>Climacteris picumnus victoriae</i>			NT	Woodlands dominated by eucalyptus, especially Stringybarks or other rough-barked eucalypts usually with open grassy understorey (Higgins <i>et al.</i> 2001)	6 (1987 - 1991)	Low	Unlikely to occur.
Diamond Dove	<i>Geopelia cuneata</i>		L	NT	Mostly arid and semi-arid grassland savanna, often of spinifex and in low open woodlands with grassy understorey; also often in open riparian woodlands (Higgins and Davies 1996).	1 (1999)	Low	Unlikely to occur.
Diamond Firetail	<i>Stagonopleura guttata</i>		L	VU	Commonly found in box-ironbark forests and woodlands and also occurs along watercourses and in farmland areas (Emison <i>et al.</i> 1987; Tzaros 2005).	2 (1990)	Low	Unlikely to occur.

Common Name	Scientific Name	Conservation Status			Habitat	AVW record # (year)	Habitat suitability in study area	Likelihood of Occurrence
		EPBC	FFG	DSE				
Eastern Great Egret	<i>Ardea modesta</i>	M (JAMBA, CAMBA)	L	VU	Occurs in a variety of wetlands including: permanent water bodies on flood plains; shallows of deep permanent lakes, either open or vegetated with shrubs or trees; semi-permanent swamps with tall emergent vegetation (e.g. Typha) and herb dominated seasonal swamps with abundant aquatic flora (Marchant and Higgins 1990).	2 (1974 & 1991)	Low	Unlikely to occur.
Hardhead	<i>Aythya australis</i>			VU	Inhabits large, deep waters where vegetation is abundant; particularly deep swamps and lakes, pools and creeks. Also occur on freshwater meadows, seasonal swamps with abundant aquatic flora, reed swamps, wooded lakes and swamps, rice fields, and sewage ponds (Marchant and Higgins 1990).	2 (1986 & 1991)	Low	Unlikely to occur.
Lewin's Rail	<i>Rallus pectoralis pectoralis</i>		L	VU	Occurs in a variety of densely vegetated wetland habitats, fresh or saline and usually with areas of standing water; requires shallow water areas to forage in (Marchant and Higgins 1993).	1 (1991)	Low	Unlikely to occur.

Common Name	Scientific Name	Conservation Status			Habitat	AVW record # (year)	Habitat suitability in study area	Likelihood of Occurrence
		EPBC	FFG	DSE				
Nankeen Night Heron	<i>Nycticorax caledonicus hillii</i>			NT	Inhabits littoral and estuarine habitats and terrestrial wetlands. Mainly nocturnal; forage over soft or firm substrates in still or slow-moving shallow water, on exposed shores, banks and flats of wetlands, or swampy vegetation; often where sheltered by tall emergent or ground vegetation, and near trees used for roosting (Marchant and Higgins 1990).	5 (1974 - 1995)	Low	Unlikely to occur.
Pied Cormorant	<i>Phalacrocorax varius</i>			NT	In marine and coastal habitats. They require trees in which to nest, such as dead eucalypts or melaleucas and also occurs in the Murray-Darling Basin and other large lakes (Marchant and Higgins 1990).	3 (1990 - 1995)	Low	Unlikely to occur.
Royal Spoonbill	<i>Platalea regia</i>			VU	Terrestrial wetlands, sheltered marine habitats and wet grasslands. Foraging limited to shallow waters; often among aquatic or emergent vegetation or submerged logs that shelter prey and favour coastal habitats (Marchant and Higgins 1990).	1 (1986)	Low	Unlikely to occur.
Speckled Warbler	<i>Chthonicola sagittata</i>		L	VU	Inhabits dry eucalypt forests and woodlands, especially those with box-ironbark eucalypt associations. It is also found in River Red Gum woodlands (Higgins and Peter 2002; Tzaros 2005).	5 (1990)	Low	Unlikely to occur.

Common Name	Scientific Name	Conservation Status			Habitat	AVW record # (year)	Habitat suitability in study area	Likelihood of Occurrence
		EPBC	FFG	DSE				
Spotted Harrier	<i>Circus assimilus</i>			NT	It prefers open woodlands that do not obstruct low flight, and natural and exotic grasslands in arid and semi arid areas (Higgins and Davies 1996).	1 (1991)	Low	Unlikely to occur.
Swift Parrot	<i>Lathamus discolor</i>	EN	L	EN	Prefers a narrow range of eucalypts in Victoria, including White Box, Red Ironbark and Yellow Gum as well as River Red Gum when this species supports abundant 'lerp' (Emison et al. 1987; Higgins 1999; Kennedy and Tzaros 2005).	3 (1990 - 1991)	Low	Unlikely to occur.
Mammals								
Eastern Barred Bandicoot	<i>Perameles gunnii</i>	EN	L	CE	Originally volcanic plain native grasslands, nowadays farmland, parkland and suburban gardens (Menkhorst 1995).	10 (1993 - 2003)	Low	All of the records from Woodlands Historic Park, situated six kilometres east of study area.
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	VU	L	VU	Roosts in riverine habitat in Melbourne and forages widely in flowering eucalypts and fruit trees (Menkhorst 1995).	None	Low	Unlikely to occur.

Common Name	Scientific Name	Conservation Status			Habitat	AVW record # (year)	Habitat suitability in study area	Likelihood of Occurrence
		EPBC	FFG	DSE				
Fat-tailed Dunnart	<i>Sminthopsis crassicaudata</i>			NT	Native grasslands associated with rocky areas, rough pastures and the edges of stubble paddocks (Menkhorst 1995).	1 (1978)	Moderate to Low	Likely to occur.
Spot-tailed Quoll	<i>Dasyurus maculatus maculatus</i>	EN	L	EN	Rainforest, wet and dry forest, coastal heath and scrub and River Red-gum woodlands along inland rivers (Menkhorst 1995).	None	Low	Unlikely to occur.
Reptiles								
Eastern Bearded Dragon	<i>Pogona barbata</i>			DD	Woodland and dry forest (Wilson and Swan 2003).	1 (1988)	Low	Unlikely to occur.
Striped Legless Lizard	<i>Delma impar</i>	VU	L	EN	Tussock grasslands on the volcanic plains, often associated with scattered rocks and cracked soils (Cogger 2000).	3 (1971 - 2001)	Low	Unlikely to occur.
Frogs								
Brown Toadlet	<i>Pseudophryne bibronii</i>		L	EN	Wet and dry forest, grassy areas beside small creeks, alpine grassland & mossy bogs (Cogger 2000).	23 (1989 & 1990)	Low	Unlikely to occur.
Growling Grass Frog	<i>Litoria raniformis</i>	VU	L	EN	Permanent, still or slow flowing water with fringing and emergent vegetation in streams, swamps, lagoons and artificial wetlands such as farm dams and abandoned quarries (Clemann and Gillespie 2004).	8 (1978 - 2002)	Low	Unlikely to occur.

Common Name	Scientific Name	Conservation Status			Habitat	AVW record # (year)	Habitat suitability in study area	Likelihood of Occurrence
		EPBC	FFG	DSE				
Invertebrate								
Golden Sun Moth	<i>Synemon plana</i>	CE	L	CE	Areas that are, or have been native grasslands or grassy woodlands. It is known to inhabit degraded grasslands with introduced grasses being dominant, with a preference for the native wallaby grass being present (DEWHA 2009).	None	Moderate	Likely to occur.

EPBC = Status under EPBC Act; **FFG** = Status under FFG Act; **DSE** = Status from DSE Advisory List; **CE** = Critically endangered; **EN** = Endangered; **VU** = Vulnerable; **NT** = Lower risk, near threatened; **DD** = data deficient; **L** = Listed on FFG Act; **M** = Listed migratory species; **(JAMBA)** = Japan-Australia Migratory Bird Agreement; **(CAMBA)** = China-Australia Migratory Bird Agreement; **(ROKAMBA)** = Republic of Korea- Australia Migratory Bird Agreement; **(Bonn)** = Bonn Convention

Best or remaining 50% habitat for threatened fauna species

Table 6: Determination of best/remaining habitat for threatened fauna species

Species	Conservation status	Steps	Determination of Best 50% / Remaining 50%	Conservation significance
Golden Sun Moth	Threatened	A (no) – D (yes) – F (No)	Remaining 50%	High
Fat-tailed Dunnart	Rare	A (no) – D (yes) – F (No)	Remaining 50%	Medium

2.3.3. Management issues (threats)

The following are deemed to be significant threats to the offset site.

Weeds

Highly invasive weeds provide a moderate coverage within the offset zone. Many of the weed species found within the offset site are very hard to control effectively within an 'offset' environment (i.e. Serrated Tussock). A highly experienced bushland regenerator is required for the weed control measures undertaken on this site.

Pest animals

While not currently an issue, pest animals may become a significant problem for the values of the site in the future. Pest animals should be monitored on a regular basis for any negative impacts. Pest control methods should be implemented where it is deemed that the animals are having a significant impact.

Inappropriate grazing regime

Due to the changing land uses of the site it is recommended that grazing cease on the offset zone. Excessive grazing can lead to an increase in weeds and decrease the cover of native species. If grazing is unavoidable it should only occur on a pulse basis.

Inappropriate fire regime/biomass removal

There is potential for this site to become degraded through inappropriate method for biomass removal. It is recommended that the site biomass strategy involve the burning of the site at a three year interval at a time that is appropriate for the golden sun moth. This is currently recommended to occur in autumn. If guidelines for burning grasslands containing the Golden Sun Moth change, this should be addressed.

Inappropriate anthropogenic disturbance

While not currently an issue, inappropriate disturbances such as trail biking should be monitored.

Hard rubbish

Due to the proximity of this site to surrounding residential and industrial land uses hard rubbish is likely to be dumped on site. Hard rubbish should be continually monitored with rubbish collected as soon as it appears to discourage more dumping. Appropriate fencing and signage should discourage more dumping.

2.4. Like-for-like criteria

The offset is located in the Victorian Volcanic Plain Bioregion and comprises Plains Grassy Woodland (EVC 55_61) vegetation. The offset zone is located on the same property as the clearing site. The offset zone is of the same Conservation Significance as the loss zone and meets all the Like-for-Like criteria as specified in Appendix 4 of the Framework (see Appendix 5).

Table 7: Meeting Like-for-Like criteria for clearing a remnant patch

Clearing site							Offset site						
Target No.	Habitat Zone	Bioregion	EVC No.	Conservation significance	Min. habitat score for target	Other Like-for-Like reqts	Trading up	Offset Zone	Bioregion	EVC No.	Conservation significance	Habitat score	Other Like-for-Like attributes
H1	A	VVP	55_61	High	23	**	No	AA	VVP	55_61	High	31	**

** Remaining 50% habitat for Golden Sun-moth and Fat-tailed Dunnarts and same EVC or a very high conservation significance EVC in the same Bioregion.

2.5. Quantification of gains available on offset site

Table 8: Quantification of offset gains available – protection and management of a remnant patch

Management Zone			AA		
EVC No.			55_61		
Area (ha)			25.6		
Current Score (out of 100)			31		
Conservation Significance			High		
Multiplier			1		
			<i>Current Score</i>	<i>Maintenance</i>	<i>Improvement</i>
Site Condition	Large Old Trees	/15	0	0	NA
	Canopy Cover	/5	0	0	0
	Understorey	/25	5	0.5	5
	Lack of Weeds	/15	7	NA	4
	Recruitment	/10	0	0	0
	Organic Matter	/5	5	0.5	0
	Logs	/5	0	0	0
<i>Subtotal of gains achievable in zone</i>				1	9
Total gains achievable in zone*			10		
Recognition of past management			3.1		
Improved security gain			3.1		
Total hha gained per ha			0.162		
Net Gain (habitat hectares)			4.147		
Large old trees protected in zone			0		

*= Zones meet like-for-like rules and therefore contribute towards the target net gain.

2.6. Allocation of native vegetation gains

Table 9: Allocation of native vegetation gains for clearing a remnant patch

Gain Target		Trading up	Source of gains to meet the target		Outcome
Target No.	Target (Hha)	Discount	Offset Zone	Gain (Hha)	Surplus/ Deficit (Hha)
1	4.14	NA	AA	4.147	N/A

Various offset scenarios were explored to generate a gain in the offset site that would best match the gain target.

3. OFFSET IMPLEMENTATION (PART B)

OFFSET SITE DETAILS	
Landowner of offset site	Qanstruct Pty. Ltd.
Type of offset (onsite, 3 rd party)	On site
Location and address of offset site	180 Loemans Road, Bulla
Area of offset site (ha)	25.6
Offset site number (if applicable)	Not applicable
Volume	9412
Folio	099
Parish	Tullamarine
Allotment	Parts of Crown Allotment A Portion 11
Local Government Area	Hume City Council
Responsible Authority	Department of Sustainability and Environment
Bioregion	Victorian Volcanic Plain

3.1. Strategy for offset site

The offset site is to be secured and managed for the purposes of conservation in perpetuity.

OFFSET SECURITY AND MANAGEMENT RESPONSIBILITY	
Who is liable/responsible for meeting offset requirements?	Qanstruct Pty. Ltd.
Type of security i.e. Planning Permit Condition, Section 69 of the <i>Conservation, Forest and Lands Act 1987 (Vic)</i> , Section 173 of the <i>Planning and Environment Act 1987 (Vic)</i> Covenant under the <i>Victorian Conservation Trust Act 1972 (Vic)</i>	Section 173
Agreement or Planning Permit Number (ID)	To be provided
Date 10-year offset management to commence	December 2010
Date 10-year offset management expires	December 2020
Registered on title? (Yes/No)	Yes
Offset site management responsibility (i.e. Landowner, Authority Name)	Qanstruct Pty. Ltd.
Offset Monitoring Responsibility (i.e. Responsible Authority, DSE)	DSE

3.2. Ongoing land-use commitments

The removal of 8.90 hectares (2.76 Hha) of Plains Grassy Woodland (EVC 55_61) will be offset through:

- The protection of a 25.6 hectare offset zone (Offset Zone AA) supporting (treeless) Plains Grassy Woodland (EVC 55_61) located onsite.

This offset will involve:

- excluding stock (unless required as part of the ecological management of the site and prior consent has been obtained from DSE Biodiversity Services);
- reducing the cover of high threat herbs/grasses;
- controlling all grazing threats;
- predicted recruitment of understorey species;
- eliminating all high threat and woody environmental weeds; and
- retaining all native vegetation (dead or alive), organic litter and logs.

The landowner will continue to manage the offset site after the completion of Year 10 as specified in this Offset Plan, such that:

- weed cover does not increase beyond the level attained at the completion of Year 10; and
- pest animals are controlled to the level attained at the completion of Year 10.

Any proposed uses or development of the site which conflict with the landowner commitments are not allowed under this plan.

3.3. Management actions

3.3.1. Management actions to be undertaken

The following actions must be undertaken in order to achieve required gains:

Fencing

Prior to the commencement of any works within 180 Loemans Road, Bulla, occurring, the offset site must be securely fenced. This fence must be constructed to exclude all vehicles, machinery and equipment from the development site. The fence must be permanent and of at least 1.5 metres in height. No vehicle access for the development site may occur within the offset site.

Signage

Prior to the commencement of works, sturdy permanent weatherproof signs must be affixed to the fencing surrounding the offset site. These signs must contain in bold clear letters "Vegetation Protection Zone – Access and Storage Prohibited". The signs must be clearly visible and at regular intervals so that all contractors working on site are aware of the Vegetation Protection Zone (offset zone).

Rubbish removal

All hard rubbish must be removed from the offset site at the commencement of the plan. In addition, rubbish should be removed at regular intervals to discourage further dumping.

Biomass control

Biomass should be controlled at regular intervals of 3-5 years through the burning of the site in autumn.

Pest animal control

Rabbits and other pest animals should be controlled at regular intervals if they are deemed to be impacting vegetation on site. They should be assessed annually in spring by a bushland contractor/ecologist.

Monitoring

The site should be monitored by an experienced ecologist at the commencement of the plan and during spring in the first, third, fifth and tenth year. The following should be recorded:

- Estimate overall weed cover and cover of each high threat [woody] weed species (refer to Table 16 for high threat species);
- Assess integrity of offset zone fencing and signage;
- Assess need for biomass removal;
- Assess level of grazing pressure; and
- Monitor compliance with land-use commitments and other management commitments.

Weed control

Under this plan, the cover of regionally controlled weeds and environmental weeds must be reduced to negligible levels (<1 % cover) by the end of the plan. Table 10 below lists all species to be controlled and management methods.

Please note that land managers are expected to meet their obligations under the Catchment and Land Protection Act 1994 with respect to eradicating regionally prohibited weeds and preventing the growth and spread of regionally controlled weeds.

Table 10: High threat weed species and control methods

Woody / non-woody	Common Name	Scientific name	Objective	Control method	Optimal timing
Woody	Artichoke Thistle	<i>Cynara cardunculus</i>	Eliminate <1 % cover	Seedlings dug out before taproot thickens in spring. Treated with selective broadleaf herbicides. Will require follow-up for large individuals.	Early-Mid Spring must be before flower stem thickens.
Woody	Galenia (Blanket Weed)	<i>Galenia pubescens var. pubescens</i>	Eliminate <1 % cover	Sever main tap root, invert plant and leave in place. Spot-spray seedlings using an appropriate herbicide.	Autumn and spring
Woody	African Boxthorn	<i>Lycium ferocissimum</i>	Eliminate <1 % cover	Cut and paint mature plants using an appropriate herbicide. Spot-spray seedlings with appropriate herbicide.	Autumn and spring
Non Woody	Texas Needle-grass	<i>Nassella leucotricha</i>	Eliminate <1 % cover	Spot-spray using an appropriate herbicide. Quarantine infestations during seeding period.	Autumn and spring (Herbicide application) November to February (Quarantine)
Non Woody	Serrated Tussock	<i>Nassella trichotoma</i>	Eliminate <1 % cover	Spot-spray using an appropriate herbicide.	Autumn and spring

3.3.2. Management action tables

The following tables identify specific management actions and targets pertaining to the management of the proposed offset.

Table 11: Year 1 actions

Offset Zone	Management Action	Timing	Target to be achieved	Responsible person	Completed (Yes/No)	Month and Year Completed
AA	Estimate the following conditions: <ul style="list-style-type: none"> ▪ Overall weed cover; ▪ Overall high threat weed cover; ▪ cover of each high threat weed species; ▪ cover of each high threat woody weed species Refer to Table 11 for high threat species	Commencement of plan	<ul style="list-style-type: none"> ▪ Overall weed cover benchmark* documented; ▪ High threat weed cover benchmark* documented; ▪ Cover of each high threat weed species listed in Table 11 documented; ▪ Cover of each high threat woody weed species listed in Table 11 documented. 	Bushland contractor/Ecologist		
AA	Erect signage	Commencement of plan	Signage constructed to above prescriptions	Bushland contractor		
AA	Hard rubbish to be removed from offset zones.	Commencement of plan	Offset zones free of any rubbish	Bushland contractor		
AA	Construct fencing around offset zones.	Commencement of plan	Fencing must prevent entry of threatening herbivores and anthropogenic disturbances	Fencing contractor		
AA	Rabbit Control to be carried out if required – Fumigate and collapse burrows where present.	Late Summer/Autumn	<ul style="list-style-type: none"> ▪ <5% survival of target; ▪ <2% death of non target species. 	Bushland contractor or pest controller		

Offset Zone	Management Action	Timing	Target to be achieved	Responsible person	Completed (Yes/No)	Month and Year Completed
AA	Weed control: <ul style="list-style-type: none"> ▪ Treat <i>high threat</i> woody weeds as per Table 11; ▪ Treat other <i>high threat</i> weeds as per Table 11, if required; ▪ Treat <i>high threat</i> weeds as per Table 11; ▪ Treat other weeds species if required. 		<ul style="list-style-type: none"> ▪ Cover of each <i>high threat</i> woody weed species reduced to <1%; ▪ Cover of each <i>high threat</i> weed species reduced to <1%; ▪ <i>High threat</i> weed cover benchmark* not exceeded; ▪ Overall weed cover benchmark* not exceeded. 	Bushland contractor		
AA	Monitoring: <ul style="list-style-type: none"> ▪ Estimate overall weed cover and cover of each <i>high threat</i> [woody] weed species (refer to Table 11 for <i>high threat</i> species); ▪ Assess integrity of offset zone fencing; ▪ Assess level of grazing pressure; ▪ Monitor compliance with land-use commitments and other management commitments. 	Spring	Monitoring results to be documented and retained for reporting purposes. Results should also inform management approaches and techniques.	Ecologist		
AA	Sign maintenance to be carried out if required		Signage maintained to above prescriptions	Bushland contractor		
AA	Fencing maintenance to be carried out if required		Fencing must prevent entry of threatening herbivores and anthropogenic disturbances	Bushland contractor		

Offset Zone	Management Action	Timing	Target to be achieved	Responsible person	Completed (Yes/No)	Month and Year Completed
AA	Weed control: <ul style="list-style-type: none"> ▪ Treat <i>high threat</i> woody weeds as per Table 11; ▪ Treat other <i>high threat</i> weeds as per Table 11, if required; ▪ Treat <i>high threat</i> weeds as per Table 11; ▪ Treat other weeds species if required. 	Late spring	<ul style="list-style-type: none"> ▪ Cover of each <i>high threat</i> woody weed species reduced to <1%; ▪ Cover of each <i>high threat</i> weed species reduced to <1%; ▪ <i>High threat</i> weed cover benchmark* not exceeded; ▪ Overall weed cover benchmark* not exceeded. 	Bushland contractor		
AA	Supplementary irrigation if required.	Summer	As required	Bushland contractor		
AA	Report to be prepared documenting management actions undertaken and monitoring results. Report structure and content to be prescribed by DSE and the Responsible Authority.	Report due 31 st December, 2011	Report delivered to the Responsible Authority and DSE no later than three months after the due date.	Land owner / Ecologist		

* = The overall weed cover benchmark is an estimate of the overall weed cover at the commencement of the offset plan. This informs both contractors and auditors of the plan in ensuring that overall weed cover does not increase beyond that benchmark.

Table 12: Years 2-3 actions

Offset Zone	Management Action	Timing	Target to be achieved	Responsible person	Completed (Yes/No)	Month and Year Completed
AA	Rabbit Control to be carried out if required – Fumigate and collapse burrows where present.		<ul style="list-style-type: none"> <5% survival of target; <2% death of non target species. 	Bushland contractor or pest controller		
AA	Weed control: <ul style="list-style-type: none"> Treat <i>high threat</i> woody weeds as per Table 11; Treat other <i>high threat</i> weeds as per Table 11, if required; Treat <i>high threat</i> weeds as per Table 11; Treat other weeds species if required. 	Autumn	<ul style="list-style-type: none"> Cover of each <i>high threat</i> woody weed species reduced to <1%; Cover of each <i>high threat</i> weed species reduced to <1%; <i>High threat</i> weed cover benchmark* not exceeded; Overall weed cover benchmark* not exceeded. 	Bushland contractor		
AA	#Prescribed burning to be carried in year 3 as per the Biomass management strategy in Section 3.3.1	Autumn	Inter-tussock spaces maintained to optimise ecological function.	DSE		
AA	Weed control: <ul style="list-style-type: none"> Treat <i>high threat</i> woody weeds as per Table 11; Treat other <i>high threat</i> weeds as per Table 11, if required; Treat <i>high threat</i> weeds as per Table 11; Treat other weeds species if required. 	Spring	<ul style="list-style-type: none"> Cover of each <i>high threat</i> woody weed species reduced to <1%; Cover of each <i>high threat</i> weed species reduced to <1%; <i>High threat</i> weed cover benchmark* not exceeded; Overall weed cover benchmark* not exceeded. 	Bushland contractor		

Offset Zone	Management Action	Timing	Target to be achieved	Responsible person	Completed (Yes/No)	Month and Year Completed
AA	<p>Monitoring:</p> <ul style="list-style-type: none"> ▪ Estimate overall weed cover and cover of each <i>high threat</i> [woody] weed species (refer to Table 11 for <i>high threat</i> species); ▪ Assess integrity of offset zone fencing; ▪ Assess level of grazing pressure; ▪ Monitor compliance with land-use commitments and other management commitments. 		Monitoring results to be documented and retained for reporting purposes. Results should also inform management approaches and techniques.	Ecologist		
AA	<p>Weed control – if required:</p> <ul style="list-style-type: none"> ▪ Treat <i>high threat</i> woody weeds as per Table 11; ▪ Treat other <i>high threat</i> weeds as per Table 11, if required; ▪ Treat <i>high threat</i> weeds as per Table 11; ▪ Treat other weeds species if required. 	Summer	<ul style="list-style-type: none"> ▪ Cover of each <i>high threat</i> woody weed species reduced to <1%; ▪ Cover of each <i>high threat</i> weed species reduced to <1%; ▪ <i>High threat</i> weed cover benchmark* not exceeded; ▪ Overall weed cover benchmark* not exceeded. 	Bushland contractor		
AA	Year 2: Fencing and signage maintenance to be carried out if required	Following monitoring	Integrity of fencing maintained to exclude entry of threatening herbivores and anthropogenic disturbances. Signage maintained as above prescriptions	Fencing contractor		
AA	Report to be prepared documenting management actions undertaken and monitoring results. Report structure and content to be prescribed by DSE and the Responsible Authority.	Report due 31 st December, 2013	Report delivered to the Responsible Authority and DSE no later than three months after the due date.	Land owner / Ecologist		

* = The overall weed cover benchmark is an estimate of the overall weed cover at the commencement of the offset plan. This informs both contractors and auditors of the plan in ensuring that overall weed cover does not increase beyond that benchmark; # = The frequency of prescribed burning may vary between 3-5 years, subject to climatic conditions.

Table 13: Years 4-10 actions

Offset Zone	Management Action	Target to be achieved	Responsible person	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
AA	Rabbit Control to be carried out if required – Fumigate and collapse burrows where present	<ul style="list-style-type: none"> ▪ <5% survival of target; ▪ <2% death of non target species. 	Bushland contractor or pest controller		X		X		X	
AA	Weed control: <ul style="list-style-type: none"> ▪ Treat <i>high threat</i> woody weeds as per Table 11; ▪ Treat other <i>high threat</i> weeds as per Table 11, if required; ▪ Treat <i>high threat</i> weeds as per Table 11; ▪ Treat other weeds species if required. 	<ul style="list-style-type: none"> ▪ Cover of each <i>high threat</i> woody weed species reduced to <1%; ▪ Cover of each <i>high threat</i> weed species reduced to <1%; ▪ <i>High threat</i> weed cover benchmark* not exceeded; ▪ Overall weed cover benchmark* not exceeded. 	Bushland contractor	X	X	X	X	X	X	X
AA	#Prescribed burning to be carried in year 3 as per the Biomass management strategy in Section 3.3.1	Inter-tussock spaces maintained to optimise ecological function.	DSE			X			X	

Offset Zone	Management Action	Target to be achieved	Responsible person	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
AA	Monitoring: <ul style="list-style-type: none"> ▪ Estimate overall weed cover and cover of each <i>high threat</i> [woody] weed species (refer to Table 11 for <i>high threat</i> species); ▪ Assess integrity of offset zone fencing; ▪ Assess level of grazing pressure; ▪ Monitor compliance with land-use commitments and other management commitments. 	Monitoring results to be documented and retained for reporting purposes. Results should also inform management approaches and techniques.	Ecologist	X	X	X	X	X	X	X
AA	Fence maintenance to be carried out if required	Integrity of fencing maintained to exclude entry of threatening herbivores	Fencing contractor	X		X		X		X
AA	Sign maintenance to be carried out if required	Signage maintained to above prescriptions	Bushland contractor	X		X		X		X
AA	Report to be prepared documenting management actions undertaken and monitoring results. Report structure and content to be prescribed by DSE and the Responsible Authority.	Report delivered to the Responsible Authority and DSE no later than three months after the due date.	Land owner / Ecologist		X					X

* = The overall weed cover benchmark is an estimate of the overall weed cover at the commencement of the offset plan. This informs both contractors and auditors of the plan in ensuring that overall weed cover does not increase beyond that benchmark; # = The frequency of prescribed burning may vary between 3-5 years, subject to climatic conditions.

3.4. Monitoring and reporting

The Landowner agrees to submit the Landowner Monitoring and Report Form to the DSE as specified in Table 15.

Table 14: Landowner Monitoring and Reporting Schedule

Year	Year from commencement	Time of year	Monitoring Method	Person Responsible	Report due to DSE by:
2011	1	Spring	Landowner Monitoring Form	Landowner	By 31 December 2011
2012	2				By 31 December 2012
2016	5	Any			By 31 December 2016
2021	10				By 31 December 2021
Post 2021	As requested in writing by DSE and within a maximum 3 months of the date of issue				

4. REFERENCES

- Brett Lane and Associates Pty Ltd 2010, *180 Loemans Road Flora and Fauna Assessment, Report No. 10009 (1.1)*, Brett Lane and Associates Pty Ltd, Hawthorn, Victoria.
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- Department of Natural Resources and Environment 2002, *Victoria's Native Vegetation Management - a Framework For Action*. State of Victoria, Department of Natural Resources and Environment, Victoria.
- Department of Sustainability and Environment 2006a, *Native Vegetation: Revegetation Planting Standards - Guidelines for establishing native vegetation for net gain accounting*. Department of Sustainability and Environment, East Melbourne, Victoria.
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Appendix 1: Flora species recorded in the offset site

Origin	Common Name	Scientific Name	Conservation Status			Recorded
			EPBC	FFG	DSE	
*	African Box-thorn	<i>Lycium ferocissimum</i>				X
	Arching Flax-lily	<i>Dianella sp. aff. longifolia (Benambra)</i>			v	
*	Artichoke Thistle	<i>Cynara cardunculus</i>				X
	Austral Moonwort	<i>Botrychium australe</i>		L	v	
	Austral Toad-flax	<i>Thesium australe</i>	V	L	v	
	Austral Tobacco	<i>Nicotiana suaveolens</i>			r	
	Austral Trefoil	<i>Lotus australis var. australis</i>			k	
	Basalt Peppergrass	<i>Lepidium hyssopifolium</i>	E	L	e	
	Bell-flower Hyacinth-orchid	<i>Dipodium campanulatum</i>			e	
	Black Roly-poly	<i>Sclerolaena muricata var. muricata</i>			k	
	Branching Groundsel	<i>Senecio cunninghamii var. cunninghamii</i>			r	
	Bristly Wallaby-grass	<i>Austrodanthonia setacea</i>				X
	Brittle Greenhood	<i>Pterostylis truncata</i>		L	e	
	Buloke	<i>Allocasuarina luehmannii</i>		L		
	Button Wrinklewort	<i>Rutidosis leptorhynchoides</i>	E	L	e	
	Clover Glycine	<i>Glycine latrobeana</i>	V	L	v	
*	Common Peppergrass	<i>Lepidium africanum</i>				X
	Common Purslane	<i>Portulaca oleracea</i>				X
*	Fat Hen	<i>Chenopodium album</i>				X
	Flat Spike-sedge	<i>Eleocharis plana</i>			v	
	Fragrant Saltbush	<i>Rhagodia parabolica</i>			r	
*	Galenia	<i>Galenia pubescens var. pubescens</i>				X
#	Giant Honey-myrtle	<i>Melaleuca armillaris subsp. armillaris</i>			r	
	Grey Spike-sedge	<i>Eleocharis macbarronii</i>			k	

Origin	Common Name	Scientific Name	Conservation Status			Recorded
			EPBC	FFG	DSE	
	Large-headed Fireweed	<i>Senecio macrocarpus</i>	V	L	e	
	Leafless Bluebush	<i>Maireana aphylla</i>			k	
	Melbourne Yellow-gum	<i>Eucalyptus leucoxydon subsp. connata</i>		X	v	
	Native Millet	<i>Panicum decompositum var. decompositum</i>				X
	Native Peppergrass	<i>Lepidium pseudohyssopifolium</i>			k	
	Nodding Saltbush	<i>Einadia nutans subsp. nutans</i>				X
*	Onion Grass	<i>Romulea rosea</i>				X
	Pale Plover-daisy	<i>Leiocarpa leptolepis</i>		L	e	
	Pale Spike-sedge	<i>Eleocharis pallens</i>			k	
	Pale Swamp Everlasting	<i>Helichrysum aff. rutidolepis (Lowland Swamps)</i>			v	
	Plains Joyweed	<i>Alternanthera sp. 1 (Plains)</i>			k	
	Plains Yam-daisy	<i>Microseris sp. 1</i>			v	
*	Prostrate Knotweed	<i>Polygonum aviculare s.l.</i>				X
	Proud Diuris	<i>Diuris X fastidiosa</i>			e	
	Purple Diuris	<i>Diuris punctata var. punctata</i>		L	v	
*	Ribwort	<i>Plantago lanceolata</i>				X
	River Red-gum	<i>Eucalyptus camaldulensis</i>		N		
	River Swamp Wallaby-grass	<i>Amphibromus fluitans</i>	V	X		
	Rough Eyebright	<i>Euphrasia scabra</i>		L	e	
*	Rough Sow-thistle	<i>Sonchus asper s.l.</i>				X
	Rough-grain Love-grass	<i>Eragrostis trachycarpa</i>		D	r	
	Ruby Saltbush	<i>Enchylaena tomentosa var. tomentosa</i>				X
	Rye Beetle-grass	<i>Tripogon loliiformis</i>			r	
*	Serrated Tussock	<i>Nassella trichotoma</i>				X
	Short-bristle Wallaby-grass	<i>Austrodanthonia setacea var. breviseta</i>			r	
	Slender Bindweed	<i>Convolvulus angustissimus subsp. omnigracilis</i>			k	

Origin	Common Name	Scientific Name	Conservation Status			Recorded
			EPBC	FFG	DSE	
	Slender Tick-trefoil	<i>Desmodium varians</i>			k	
	Small Milkwort	<i>Comesperma polygaloides</i>		L	v	
	Small Scurf-pea	<i>Cullen parvum</i>		L	e	
*	Smooth Cat's-ear	<i>Hypochoeris glabra</i>				X
	Snowy Mint-bush	<i>Prostanthera nivea var. nivea</i>			r	
	Spear Grass	<i>Austrostipa spp.</i>				X
	Spiny Rice-flower	<i>Pimelea spinescens subsp. spinescens</i>	C	L	e	
#	Spotted Gum	<i>Corymbia maculata</i>			v	
#	Sticky Wattle	<i>Acacia howittii</i>			r	
*	Sugar Gum	<i>Eucalyptus cladocalyx</i>				X
	Sunshine Diuris	<i>Diuris fragrantissima</i>	E	L	e	
	Swamp Diuris	<i>Diuris palustris</i>		L	v	
	Swamp Water-starwort	<i>Callitriche palustris</i>			k	
*	Texas Needle-grass	<i>Nassella leucotricha</i>				X
	Tough Scurf-pea	<i>Cullen tenax</i>		L	e	
	Wallaby Grass	<i>Austrodanthonia spp.</i>				X
	Windmill Grass	<i>Chloris truncata</i>				X
	Yellow Star	<i>Hypoxis vaginata var. brevistigmata</i>			k	

* = introduced species; # = native species occurring outside of natural range; **FFG (f)** = Listed as threatened under FFG Act; **DSE** = Status in DSE Advisory List; **EPBC** = Status under EPBC Act; **C** = critically endangered; **E, e** = endangered; **V, v** = vulnerable; **R, r** = rare; **k** = insufficiently known.

Appendix 2: Fauna species recorded in the offset site

Origin	Common Name	Scientific Name	Conservation Status			Recorded
			EPBC	FFG	DSE	
Birds						
	Australasian Grebe	<i>Tachybaptus novaehollandiae</i>				
	Australasian Pipit	<i>Anthus novaeseelandiae</i>				
	Australasian Shoveler	<i>Anas rhynchotis</i>			VU	
	Australian Hobby	<i>Falco longipennis</i>				
	Australian Magpie	<i>Gymnorhina tibicen</i>				
	Australian Owlet-nightjar	<i>Aegotheles cristatus</i>				
	Australian Pelican	<i>Pelecanus conspicillatus</i>				
	Australian Pratincole	<i>Stiltia isabella</i>			NT	
	Australian Raven	<i>Corvus coronoides</i>				
	Australian Shelduck	<i>Tadorna tadornoides</i>				
	Australian White Ibis	<i>Threskiornis molucca</i>				
	Australian Wood Duck	<i>Chenonetta jubata</i>				
	Banded Lapwing	<i>Vanellus tricolor</i>				
	Bell Miner	<i>Manorina melanophrys</i>				
	Black Falcon	<i>Falco subniger</i>			VU	
	Black Kite	<i>Milvus migrans</i>				
	Black Swan	<i>Cygnus atratus</i>				
	Black-chinned Honeyeater	<i>Melithreptus gularis</i>			NT	
	Black-eared Cuckoo	<i>Chrysococcyx osculans</i>			NT	
	Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>				
	Black-fronted Dotterel	<i>Euseiornis melanops</i>				
	Black-shouldered Kite	<i>Elanus axillaris</i>				
	Blue-winged Parrot	<i>Neophema chrysostoma</i>				
	Brown Falcon	<i>Falco berigora</i>				

Origin	Common Name	Scientific Name	Conservation Status			Recorded
			EPBC	FFG	DSE	
	Brown Goshawk	<i>Accipiter fasciatus</i>				
	Brown Songlark	<i>Cincloramphus cruralis</i>				
	Brown Thornbill	<i>Acanthiza pusilla</i>				
	Brown Treecreeper (south-eastern ssp.)	<i>Climacteris picumnus victoriae</i>			NT	
	Brown-headed Honeyeater	<i>Melithreptus brevirostris</i>				
	Budgerigar	<i>Melopsittacus undulatus</i>				
	Buff-rumped Thornbill	<i>Acanthiza reguloides</i>				
	Cattle Egret	<i>Ardea ibis</i>				
	Clamorous Reed Warbler	<i>Acrocephalus stentoreus</i>				
	Cockatiel	<i>Nymphicus hollandicus</i>				
	Collared Sparrowhawk	<i>Accipiter cirrhocephalus</i>				
*	Common Blackbird	<i>Turdus merula</i>				
	Common Bronzewing	<i>Phaps chalcoptera</i>				
*	Common Myna	<i>Acridotheres tristis</i>				
*	Common Starling	<i>Sturnus vulgaris</i>				
	Crested Pigeon	<i>Ocyphaps lophotes</i>				
	Crested Shrike-tit	<i>Falcunculus frontatus</i>				
	Crimson Rosella	<i>Platycercus elegans elegans</i>				
	Diamond Dove	<i>Geopelia cuneata</i>		L	NT	
	Diamond Firetail	<i>Stagonopleura guttata</i>		L	VU	
	Dusky Moorhen	<i>Gallinula tenebrosa</i>				
	Dusky Woodswallow	<i>Artamus cyanopterus</i>				
	Eastern Great Egret	<i>Ardea modesta</i>		L	VU	
	Eastern Rosella	<i>Platycercus eximius</i>				
	Eastern Spinebill	<i>Acanthorhynchus tenuirostris</i>				
	Eastern Yellow Robin	<i>Eopsaltria australis</i>				

Origin	Common Name	Scientific Name	Conservation Status			Recorded
			EPBC	FFG	DSE	
	Eurasian Coot	<i>Fulica atra</i>				
*	Eurasian Tree Sparrow	<i>Passer montanus</i>				
*	European Goldfinch	<i>Carduelis carduelis</i>				
*	European Greenfinch	<i>Carduelis chloris</i>				
*	European Skylark	<i>Alauda arvensis</i>				
	Fairy Martin	<i>Hirundo ariel</i>				
	Fan-tailed Cuckoo	<i>Cacomantis flabelliformis</i>				
	Flame Robin	<i>Petroica phoenicea</i>				
	Fuscous Honeyeater	<i>Lichenostomus fuscus</i>				
	Galah	<i>Eolophus roseicapilla</i>				
	Golden Whistler	<i>Pachycephala pectoralis</i>				
	Golden-headed Cisticola	<i>Cisticola exilis</i>				
	Great Cormorant	<i>Phalacrocorax carbo</i>				
	Great Crested Grebe	<i>Podiceps cristatus</i>				
	Grey Butcherbird	<i>Cracticus torquatus</i>				
	Grey Currawong	<i>Strepera versicolor</i>				
	Grey Fantail	<i>Rhipidura albiscarpa</i>				
	Grey Shrike-thrush	<i>Colluricincla harmonica</i>				
	Grey Teal	<i>Anas gracilis</i>				
	Hardhead	<i>Aythya australis</i>			VU	
	Hoary-headed Grebe	<i>Poliiocephalus poliocephalus</i>				
	Horsfield's Bronze-Cuckoo	<i>Chrysococcyx basalis</i>				
	Horsfield's Bushlark	<i>Mirafrja javanica</i>				
*	House Sparrow	<i>Passer domesticus</i>				
	Jacky Winter	<i>Microeca fascinans</i>				
	Laughing Kookaburra	<i>Dacelo novaeguineae</i>				

Origin	Common Name	Scientific Name	Conservation Status			Recorded
			EPBC	FFG	DSE	
	Lewin's Rail	<i>Lewinia pectoralis</i>		L	VU	
	Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>				
	Little Corella	<i>Cacatua sanguinea</i>				
	Little Eagle	<i>Hieraaetus morphnoides</i>				
	Little Grassbird	<i>Megalurus gramineus</i>				
	Little Lorikeet	<i>Glossopsitta pusilla</i>				
	Little Pied Cormorant	<i>Microcarbo melanoleucos</i>				
	Little Raven	<i>Corvus mellori</i>				
	Little Wattlebird	<i>Anthochaera chrysoptera</i>				
	Long-billed Corella	<i>Cacatua tenuirostris</i>				
	Magpie-lark	<i>Grallina cyanoleuca</i>				
	Masked Lapwing	<i>Vanellus miles</i>				
	Masked Woodswallow	<i>Artamus personatus</i>				
	Mistletoebird	<i>Dicaeum hirundinaceum</i>				
	Musk Lorikeet	<i>Glossopsitta concinna</i>				
	Nankeen Kestrel	<i>Falco cenchroides</i>				
	Nankeen Night Heron	<i>Nycticorax caledonicus</i>			NT	
	New Holland Honeyeater	<i>Phylidonyris novaehollandiae</i>				
	Noisy Miner	<i>Manorina melanocephala</i>				
	Olive-backed Oriole	<i>Oriolus sagittatus</i>				
	Pacific Barn Owl	<i>Tyto javanica</i>				
	Pacific Black Duck	<i>Anas superciliosa</i>				
	Pallid Cuckoo	<i>Cuculus pallidus</i>				
	Peregrine Falcon	<i>Falco peregrinus</i>				
	Pied Cormorant	<i>Phalacrocorax varius</i>			NT	
	Pied Currawong	<i>Strepera graculina</i>				

Origin	Common Name	Scientific Name	Conservation Status			Recorded
			EPBC	FFG	DSE	
	Purple Swamphen	<i>Porphyrio porphyrio</i>				
	Purple-crowned Lorikeet	<i>Glossopsitta porphyrocephala</i>				
	Rainbow Bee-eater	<i>Merops ornatus</i>				
	Rainbow Lorikeet	<i>Trichoglossus haematodus</i>				
	Red Wattlebird	<i>Anthochaera carunculata</i>				
	Red-browed Finch	<i>Neochmia temporalis</i>				
	Red-capped Robin	<i>Petroica goodenovii</i>				
	Red-rumped Parrot	<i>Psephotus haematonotus</i>				
	Restless Flycatcher	<i>Myiagra inquieta</i>				
*	Rock Dove	<i>Columba livia</i>				
	Royal Spoonbill	<i>Platalea regia</i>			VU	
	Rufous Fantail	<i>Rhipidura rufifrons</i>				
	Rufous Songlark	<i>Cincloramphus mathewsi</i>				
	Rufous Whistler	<i>Pachycephala rufiventris</i>				
	Sacred Kingfisher	<i>Todiramphus sanctus</i>				
	Scarlet Robin	<i>Petroica boodang</i>				
	Shining Bronze-Cuckoo	<i>Chrysococcyx lucidus</i>				
	Silver Gull	<i>Chroicocephalus novaehollandiae</i>				
	Silvereye	<i>Zosterops lateralis</i>				
	Singing Honeyeater	<i>Lichenostomus virescens</i>				
*	Song Thrush	<i>Turdus philomelos</i>				
	Southern Boobook	<i>Ninox novaeseelandiae</i>				
	Southern Whiteface	<i>Aphelocephala leucopsis</i>				
	Speckled Warbler	<i>Pyrrholaemus sagittatus</i>		L	VU	
	Spiny-cheeked Honeyeater	<i>Acanthagenys rufogularis</i>				
	Spotless Crake	<i>Porzana tabuensis</i>				

Origin	Common Name	Scientific Name	Conservation Status			Recorded
			EPBC	FFG	DSE	
	Spotted Harrier	<i>Circus assimilis</i>			NT	
	Spotted Pardalote	<i>Pardalotus punctatus</i>				
*	Spotted Turtle-Dove	<i>Streptopelia chinensis</i>				
	Straw-necked Ibis	<i>Threskiornis spinicollis</i>				
	Striated Fieldwren	<i>Calamanthus fuliginosus</i>				
	Striated Pardalote	<i>Pardalotus striatus</i>				
	Striated Thornbill	<i>Acanthiza lineata</i>				
	Stubble Quail	<i>Coturnix pectoralis</i>				
	Sulphur-crested Cockatoo	<i>Cacatua galerita</i>				
	Superb Fairy-wren	<i>Malurus cyaneus</i>				
	Swamp Harrier	<i>Circus approximans</i>				
	Swift Parrot	<i>Lathamus discolor</i>	EN	L	EN	
	Tawny Frogmouth	<i>Podargus strigoides</i>				
	Tawny-crowned Honeyeater	<i>Phylidonyris melanops</i>				
	Tree Martin	<i>Hirundo nigricans</i>				
	Varied Sittella	<i>Daphoenositta chrysoptera</i>				
	Wedge-tailed Eagle	<i>Aquila audax</i>				
	Weebill	<i>Smicrornis brevirostris</i>				
	Welcome Swallow	<i>Hirundo neoxena</i>				
	Whistling Kite	<i>Haliastur sphenurus</i>				
	White-bellied Cuckoo-shrike	<i>Coracina papuensis</i>				
	White-browed Babbler	<i>Pomatostomus superciliosus</i>				
	White-browed Scrubwren	<i>Sericornis frontalis</i>				
	White-browed Woodswallow	<i>Artamus superciliosus</i>				
	White-eared Honeyeater	<i>Lichenostomus leucotis</i>				
	White-faced Heron	<i>Egretta novaehollandiae</i>				

Origin	Common Name	Scientific Name	Conservation Status			Recorded
			EPBC	FFG	DSE	
	White-fronted Chat	<i>Epthianura albifrons</i>				
	White-naped Honeyeater	<i>Melithreptus lunatus</i>				
	White-necked Heron	<i>Ardea pacifica</i>				
	White-plumed Honeyeater	<i>Lichenostomus penicillatus</i>				
	White-throated Needle-tail	<i>Hirundapus caudacutus</i>				
	White-throated Treecreeper	<i>Cormobates leucophaeus</i>				
	White-winged Triller	<i>Lalage sueurii</i>				
	Willie Wagtail	<i>Rhipidura leucophrys</i>				
	Yellow Rosella	<i>Platycercus elegans flaveolus</i>				
	Yellow Thornbill	<i>Acanthiza nana</i>				
	Yellow-billed Spoonbill	<i>Platalea flavipes</i>				
	Yellow-faced Honeyeater	<i>Lichenostomus chrysops</i>				
	Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>				
	Yellow-tufted Honeyeater	<i>Lichenostomus melanops</i>				
	Zebra Finch	<i>Taeniopygia guttata</i>				
Mammals						
*	Black Rat	<i>Rattus rattus</i>				
	Black Wallaby	<i>Wallabia bicolor</i>				
*	Brown Rat	<i>Rattus norvegicus</i>				
*	Cat	<i>Felis catus</i>				
	Chocolate Wattled Bat	<i>Chalinolobus morio</i>				
	Common Brushtail Possum	<i>Trichosurus vulpecula</i>				
	Common Ringtail Possum	<i>Pseudocheirus peregrinus</i>				
	Dingo/Dog (feral)	<i>Canis lupus</i>				
	Eastern Barred Bandicoot	<i>Perameles gunnii</i>	E	f	c	
	Eastern Grey Kangaroo	<i>Macropus giganteus</i>				

Origin	Common Name	Scientific Name	Conservation Status			Recorded
			EPBC	FFG	DSE	
*	European Hare	<i>Lepus europeus</i>				
*	European Rabbit	<i>Oryctolagus cuniculus</i>				
	Fat-tailed Dunnart	<i>Sminthopsis crassicaudata</i>			n	
	Gould's Long-eared Bat	<i>Nyctophilus gouldi</i>				
	Gould's Wattled Bat	<i>Chalinolobus gouldii</i>				
*	House Mouse	<i>Mus musculus</i>				
	Inland Broad-nosed Bat	<i>Scotorepens balstoni</i>				
	Koala	<i>Phascolarctos cinereus</i>				
	Large Forest Bat	<i>Vespadelus darlingtoni</i>				
	Lesser Long-eared Bat	<i>Nyctophilus geoffroyi</i>				
	Little Forest Bat	<i>Vespadelus vulturnus</i>				
	Platypus	<i>Ornithorhynchus anatinus</i>				
*	Red Fox	<i>Vulpes vulpes</i>				
	Short-beaked Echidna	<i>Tachyglossus aculeatus</i>				
	Southern Forest Bat	<i>Vespadelus regulus</i>				
	Sugar Glider	<i>Petaurus breviceps</i>				
	Water Rat	<i>Hydromys chrysogaster</i>				
	White-striped Freetail Bat	<i>Tadarida australis</i>				
Reptiles						
	Bearded Dragon	<i>Pogona barbata</i>			d	
	Black Rock Skink	<i>Egernia saxatilis intermedia</i>				
	Bougainville's Skink	<i>Lerista bougainvillii</i>				
	Common Blue-tongued Lizard	<i>Tiliqua scincoides</i>				
	Common Long-necked Turtle	<i>Chelodina longicollis</i>				
	Cunningham's Skink	<i>Egernia cunninghami</i>				
	Eastern Brown Snake	<i>Pseudonaja textilis</i>				

Origin	Common Name	Scientific Name	Conservation Status			Recorded
			EPBC	FFG	DSE	
	Eastern Small-eyed Snake	<i>Rhinoplocephalus nigrescens</i>				
	Eastern Three-lined Skink	<i>Bassiana duperreyi</i>				
	Garden Skink	<i>Lampropholis guichenoti</i>				
	Large Striped Skink	<i>Ctenotus robustus</i>				
	Little Whip Snake	<i>Suta flagellum</i>				
	Lowland Copperhead	<i>Austrelaps superbus</i>				
	Marbled Gecko	<i>Christinus marmoratus</i>				
	Red-bellied Black Snake	<i>Pseudechis porphyriacus</i>				
	Southern Water Skink	<i>Eulamprus tympanum tympanum</i>				
	Striped Legless Lizard	<i>Delma impar</i>	V	f	e	
	Stumpy-tailed Lizard	<i>Tiliqua rugosa</i>				
	Tiger Snake	<i>Notechis scutatus</i>				
	Tree Dragon	<i>Amphibolurus muricatus</i>				
	Tussock Skink	<i>Pseudemoia pagenstecheri</i>				
Frogs						
	Brown Toadlet	<i>Pseudophryne bibronii</i>		f	e	
	Common Froglet	<i>Crinia signifera</i>				
	Common Spadefoot Toad	<i>Neobatrachus sudelli</i>				
	Growling Grass Frog	<i>Litoria raniformis</i>	V	f	e	
	Lesueur's Frog	<i>Litoria lesueuri</i>				
	Southern Bullfrog	<i>Limnodynastes dumerilii</i>				
	Spotted Marsh Frog	<i>Limnodynastes tasmaniensis</i>				
	Whistling Tree Frog	<i>Litoria verreauxii verreauxii</i>				
Invertebrates						
None						

Appendix 3: Landowner monitoring and reporting form

Landowner of offset site	
Location and address of offset site	180 Loemans Road, Bulla
Offset site number	
Offset plan reference number	
Responsible Authority	Department of Sustainability and Environment
Report No.	
Signature	
Date	

Please attach a copy of Management Action Table from the Offset Plan with information on which actions have been completed for year/s of this reporting period.

Describe specific monitoring results from surveys undertaken, survival rates of revegetation works, fencing work, success of weed and pest animal control work, successful management tools (i.e. techniques used to control weed species, protection of new plants, monitoring techniques...) and any problems or issues experienced (i.e. new infestation of weed species, storm damage to fencing...).

Provide photographs showing evidence of works.

If any agreed management actions or commitments are incomplete or have not been undertaken in the times specified explain the reasons why and what program of action/s will be undertaken to implement the action. If no action is to be undertaken please explain the reason/s and how the targets specified will be met.

Appendix 4: Summary of responses and offset criteria for approved native vegetation removal DNRE (2002)

APPENDIX 4 RESPONSES AND OFFSET CRITERIA - SUMMARY				
TABLE 6. SUMMARY OF RESPONSES AND OFFSET CRITERIA GRADED ACCORDING TO CONSERVATION SIGNIFICANCE				
CONSERVATION SIGNIFICANCE	VERY HIGH	HIGH	MEDIUM	LOW
Response to proposal to clear & offset	In keeping with the principles in Section 4 and in the context of the Net Gain approach which has, as a priority, the avoidance of further permanent losses of native vegetation through clearing (page 19):			
	Clearing not permitted unless exceptional circumstances apply (i.e. impacts are an unavoidable part of a development project, with approval of the Minister for Environment and Conservation (or delegate) based on considerations of environmental, social and economic values from a statewide perspective)	clearing generally not permitted	clearing generally not permitted	clearing may be permitted but only as part of an appropriate sustainable use response as determined by the responsible planning authority
If some clearing is to be permitted, the following offset requirements must be met				
Net outcome	substantial net gain i.e. at least 2 X the calculated loss in habitat hectares ¹	net gain i.e. at least 1.5 X the calculated loss in habitat hectares ¹	equivalent gain i.e. at least 1 X the calculated loss in habitat hectares ^{1, 2}	equivalent gain i.e. at least 1 X the calculated loss in habitat hectares ^{1, 2}
Formal agreement to achieve and secure offset	Requirements to achieve offsets must be identified in the associated management agreements &/or the permit conditions. Gains must be of an on-going and secure nature. Once achieved the offset must be maintained and the relevant planning authorities must maintain adequate and readily accessible records of agreed offset arrangements (ultimately on the Native Vegetation Permit Tracking system)			
Like-for-Like				
vegetation or habitat type of offset	the same vegetation/habitat type	the same vegetation/habitat type OR a Very High significance vegetation/habitat in the same Bioregion	Any EVC in the Bioregion OR a Very High or High significance vegetation/habitat in an adjacent Bioregion	
landscape role	Similar or more effective ecological function AND land protection function as impacted by the loss	Similar or more effective ecological function OR land protection function as impacted by the loss	Similar or more effective land protection function as impacted by the loss	
quality objectives for offset	The existing vegetation proposed as the basis of an offset must be at least 90% of the quality in the area being lost.	75% of the quality in the area being lost	50% of the quality in the area being lost	
	The proportion of revegetation included in the offset (in habitat hectares) is limited to			
	10%	25%	50%	100%
<p>1 Gains can include active improvements of quality and/or avoiding potential losses of quality by agreement to forego permitted uses. Note that applying all of the following offset criteria (where relevant) may require more than the minimum habitat hectares specified by these multipliers</p> <p>2 Where gains are achieved in vegetation/habitat of a higher significance than the vegetation lost, then the amount of the offset will be proportionally reduced (eg. offsetting losses in medium conservation significance with very high conservation significance gains will reduce the amount of the offsets required by half, i.e. the medium multiplier divided by the very high multiplier)</p>				

CONSERVATION SIGNIFICANCE	VERY HIGH	HIGH	MEDIUM	LOW
large old tree ⁴ objectives for offset	For remnant patches of native vegetation that contain large old trees ⁴ for each large old tree removed as part of permitted clearing ³ :			
	8 other large old trees to be protected AND 40 new trees to be recruited ⁵	4 other large old trees to be protected AND 20 new trees to be recruited ⁵	2 other large old trees to be protected AND 10 new trees to be recruited ⁵	no specific 'other large old tree protection' offset required
	For parcels of land greater than 4 ha and with 8 or more scattered old trees ⁴ /ha for each large old tree removed as part of permitted clearing ³ :			
	8 other large old trees to be protected AND 40 new trees to be recruited ⁵	4 other large old trees to be protected AND 20 new trees to be recruited ⁵	2 other large old trees to be protected AND 10 new trees to be recruited ⁵	10 new trees to be recruited ⁵
	for each medium old tree removed as part of permitted clearing ³ :			
	4 other medium old trees to be protected AND 20 new trees to be recruited ⁵	2 other medium old trees to be protected AND 10 new trees to be recruited ⁵	1 other medium old tree to be protected AND 5 new trees to be recruited ⁵	5 new trees to be recruited ⁵
	For parcels of land greater than 4 ha with less than 8 scattered old trees ⁴ /ha, or For parcels of land less than 4 ha with any number of scattered old trees ⁴ /ha for each medium or large old tree removed as part of permitted clearing ³ an appropriate number of new trees must be recruited. The number of new trees that must be recruited will be specified in regional Native Vegetation Plans and may be graded according to conservation significance. These numbers will be clearly greater than those specified above for recruitment that is supplementary to protection of other trees. However, where it better suits their circumstances, landholders may use the "protect other trees and ensure supplementary recruitment" approach to meet this criteria.			
Vicinity	Gains must be within the same bioregion, and within the same priority landscape zone ⁶ as the loss where considered appropriate by the planning authority	Gains must be within the same bioregion as the loss	Gains must be within the same bioregion as the loss OR an adjacent bioregion if offsets are in Very High or High significance vegetation	
Timing	Offsets to be initiated prior to the loss	Offsets to be initiated as soon as possible after loss occurs but no more than 1 year (seasonal requirements to be considered)		
<p>³ these offsets are only required as a consequence of native vegetation clearing which requires and receives a planning permit, and not where tree removal is exempt from the requirement to have such a permit</p> <p>⁴ old trees, large or medium, are defined as individuals of key long-lived dominant tree species (as specified in the relevant EVC benchmark) that are greater than certain diameters (for large or medium) at 1.3 m above ground level</p> <p>⁵ on a case-by-case basis at the discretion of the planning authority, this requirement to recruit new trees may be either through plantings to a prescribed standard (e.g. species composition, density, survivorship) and/or through regeneration associated with protection of other old trees. Recruitment should meet the timing criterion below. Any plantings that have been undertaken by the landholder since 1989 and that meet all the relevant offset criteria, can be used to meet this requirement.</p> <p>⁶ Identified in local landscape-scale biodiversity action plans</p>				

Appendix 5: Appendix 3.4.3 of the Port Phillip and Westernport Catchment Management Authority Native Vegetation Plan (PPWCMA 2006)

Table 3.4C: Offset Requirements for the loss of scattered trees of various ages and sizes

		BIOREGIONAL CONSERVATION SIGNIFICANCE			
		Very High	High	Medium	Low
'Protect and recruit' offset requirements¹⁷ for scattered old trees	Very large old trees¹⁸ (At least 1.5 times trunk diameter of a large old tree as defined by the relevant EVC benchmark)	Protect 10 very large old trees and recruit 50 new plants	Protect 5 very large old trees and recruit 30 new plants.	Protect 4 very large old trees and recruit 20 new plants.	Protect 2 very large old trees and recruit 10 new plants.
	Large old trees (> 1.0 to <1.5 times trunk diameter of a large old tree as defined by the relevant EVC benchmark)	Protect 8 large old trees and recruit 40 new plants	Protect 4 large old trees and recruit 20 new plants.	Protect 2 large old trees and recruit 15 new plants.	Protect 1 large old tree and recruit 10 new plants.
	Medium old trees (> 0.75 to <1.0 x trunk diameter of a large old tree as defined by the relevant EVC benchmark)	Protect 4 medium ³ old trees and recruit 20 new plants.	Protect 2 medium ³ old trees and recruit 20 new plants.	Protect 1 medium ³ old tree and recruit 15 new plants.	Protect 1 medium ³ old tree and recruit 10 new plants.
'Recruitment-only' offset requirements for scattered old trees	Very large old trees¹ (At least 1.5 times trunk diameter of a large old tree as defined by the relevant EVC benchmark)	Recruit 350 new plants.	Recruit 180 new plants.	Recruit 140 new plants.	Recruit 70 new plants.
	Large old trees (> 1.0 to <1.5 times trunk diameter of a large old tree as defined by relevant EVC benchmark)	Recruit 240 new plants.	Recruit 120 new plants.	Recruit 65 new plants.	Recruit 35 new plants.
	Medium old trees³ (> 0.75 to <1.0 x trunk diameter of a large old tree as defined by relevant EVC benchmark)	Recruit 100 new plants.	Recruit 60 new plants.	Recruit 35 new plants.	Recruit 30 new plants.
	Smaller trees (<0.75 x trunk diameter of a large old tree as defined by relevant EVC benchmark)	See Figure 7 and Table 3.4D below	See Figure 7 and Table 3.4D below	See Figure 7 and Table 3.4D below	See Figure 7 and Table 3.4D below
Type of vegetation or habitat to be created by the offset		Trees must belong to the same vegetation/habitat type (EVC) as those being cleared	Trees must belong to the same vegetation/habitat type (EVC) as those cleared OR to a very high significance vegetation/habitat in the same bioregion	Trees can belong to any EVC in the bioregion OR to a very high or high significance vegetation/habitat in an adjacent bioregion ²	Trees can belong to any EVC in the bioregion OR to a Very High or High significance vegetation/habitat in an adjacent bioregion ²

¹⁷Where gains are achieved in vegetation/habitat of a higher significance than the vegetation lost, then the amount of the offset will be proportionally reduced (eg. offsetting losses in medium conservation significance with very high conservation significance gains will reduce the amount of the offsets required by half, i.e. the medium multiplier divided by the very high multiplier)

¹⁸Old trees, very large, large or medium, are defined as individuals of key long-lived canopy tree species (as specified in the relevant EVC benchmark) that are greater than certain trunk diameters at 1.3 m above ground level

Table 3.4C: Offset Requirements for the loss of scattered trees of various ages and sizes continued

	BIOREGIONAL CONSERVATION SIGNIFICANCE			
	Very High	High	Medium	Low
Ecological and landscape and function of the vegetation to be created by the offset.	Similar or more effective ecological function and land protection function as impacted by the loss	Similar or more effective ecological function and land protection function as impacted by the loss	Similar or more effective land protection function as impacted by the loss	Similar or more effective land protection function as impacted by the loss
Location of the offset vegetation.	Gains must be within the same bioregion, and within the same priority landscape zone ¹⁹ as the loss where considered appropriate by the responsible authority.	Gains must be within the same bioregion as the loss.	Gains must be within the same bioregion as the loss OR an adjacent bioregion if offsets are in Very High or High significance vegetation.	Gains must be within the same bioregion as the loss OR an adjacent bioregion if offsets are in Very High or High significance vegetation.
Timing of the offset	Offsets to be initiated prior to the loss.	Offsets to be initiated as soon as possible after loss occurs but no more than 1-year (seasonal requirements to be considered).	Offsets to be initiated as soon as possible after loss occurs but no more than 1-year (seasonal requirements to be considered).	Offsets to be initiated as soon as possible after loss occurs but not more than 1-year (seasonal requirements to be considered).

Appendix 6: EVC Benchmarks

EVC/Bioregion Benchmark for Vegetation Quality Assessment

Victorian Volcanic Plain bioregion

EVC 55_61: Plains Grassy Woodland

Description:

An open, eucalypt woodland to 15 m tall. Occupies poorly drained, fertile soils on flat or gently undulating plains at low elevations. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer. This variant occupies areas receiving approximately 500 – 700 mm annual rainfall.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	80 cm	8 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
10%	<i>Eucalyptus camaldulensis</i>	River Red Gum

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	1	5%	T
Medium Shrub	3	10%	MS
Small Shrub	2	1%	SS
Prostrate Shrub	1	1%	PS
Large Herb	3	5%	LH
Medium Herb	8	15%	MH
Small or Prostrate Herb	3	5%	SH
Large Tufted Graminoid	2	5%	LTG
Medium to Small Tufted Graminoid	12	45%	MTG
Medium to Tiny Non-tufted Graminoid	2	5%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C

LF Code

Species typical of at least part of EVC range

Common Name

MS	<i>Acacia pycnantha</i>	Golden Wattle
MS	<i>Acacia paradoxa</i>	Hedge Wattle
SS	<i>Pimelea humilis</i>	Common Rice-flower
PS	<i>Astroloma humifusum</i>	Cranberry Heath
PS	<i>Bossiaea prostrata</i>	Creeping Bossiaea
MH	<i>Oxalis perennans</i>	Grassland Wood-sorrel
MH	<i>Gonocarpus tetragynus</i>	Common Raspwort
MH	<i>Acaena echinata</i>	Sheep's Burr
SH	<i>Dichondra repens</i>	Kidney-weed
SH	<i>Hydrocotyle laxiflora</i>	Stinking Pennywort
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
LTG	<i>Austrostipa bigeniculata</i>	Knead Spear-grass
MTG	<i>Themeda triandra</i>	Kangaroo Grass
MTG	<i>Elymus scaber</i> var. <i>scaber</i>	Common Wheat-grass
MTG	<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass
MTG	<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	Stiped Wallaby-grass
MNG	<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Grass

Recruitment:

Continuous

Organic Litter:

10 % cover

Logs:

10 m/0.1 ha.

EVC 55_61: Plains Grassy Woodland - Victorian Volcanic Plain bioregion

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MS	<i>Lycium ferocissimum</i>	African Box-thorn	high	high
LH	<i>Cirsium vulgare</i>	Spear Thistle	high	high
LH	<i>Sonchus oleraceus</i>	Common Sow-thistle	high	low
LH	<i>Plantago lanceolata</i>	Ribwort	high	low
MH	<i>Hypochaeris radicata</i>	Cat's Ear	high	low
LNG	<i>Holcus lanatus</i>	Yorkshire Fog	high	high
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	low
MTG	<i>Romulea rosea</i>	Onion Grass	high	low
MTG	<i>Briza minor</i>	Lesser Quaking-grass	high	low
MTG	<i>Briza maxima</i>	Large Quaking-grass	high	low

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